

Health Disparities Across the Lifespan: Meaning, Methods and Mechanisms

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Goals of Healthy People 2010

- Increase quality and years of healthy life
- Eliminate health disparities

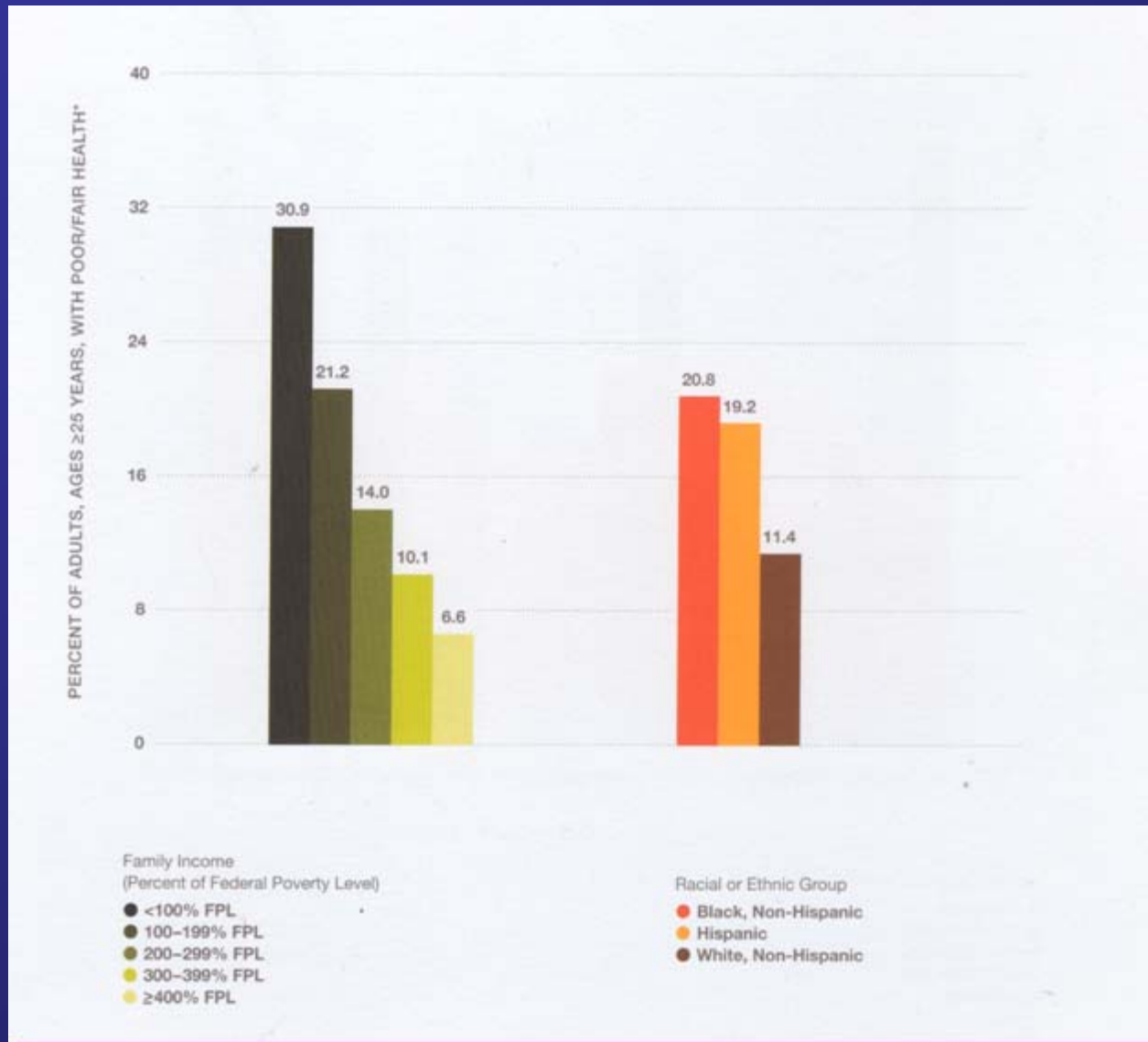
Health Disparities

Multiple definitions

Common element:

Difference that is avoidable and unfair

Health by Income and Race/Ethnicity



Number of articles appearing in medical literature with key term “health disparity” or “health inequality.”

‘80-‘84

‘85-‘89

‘90-‘94

‘95-‘99

‘00-‘04

3

12

45

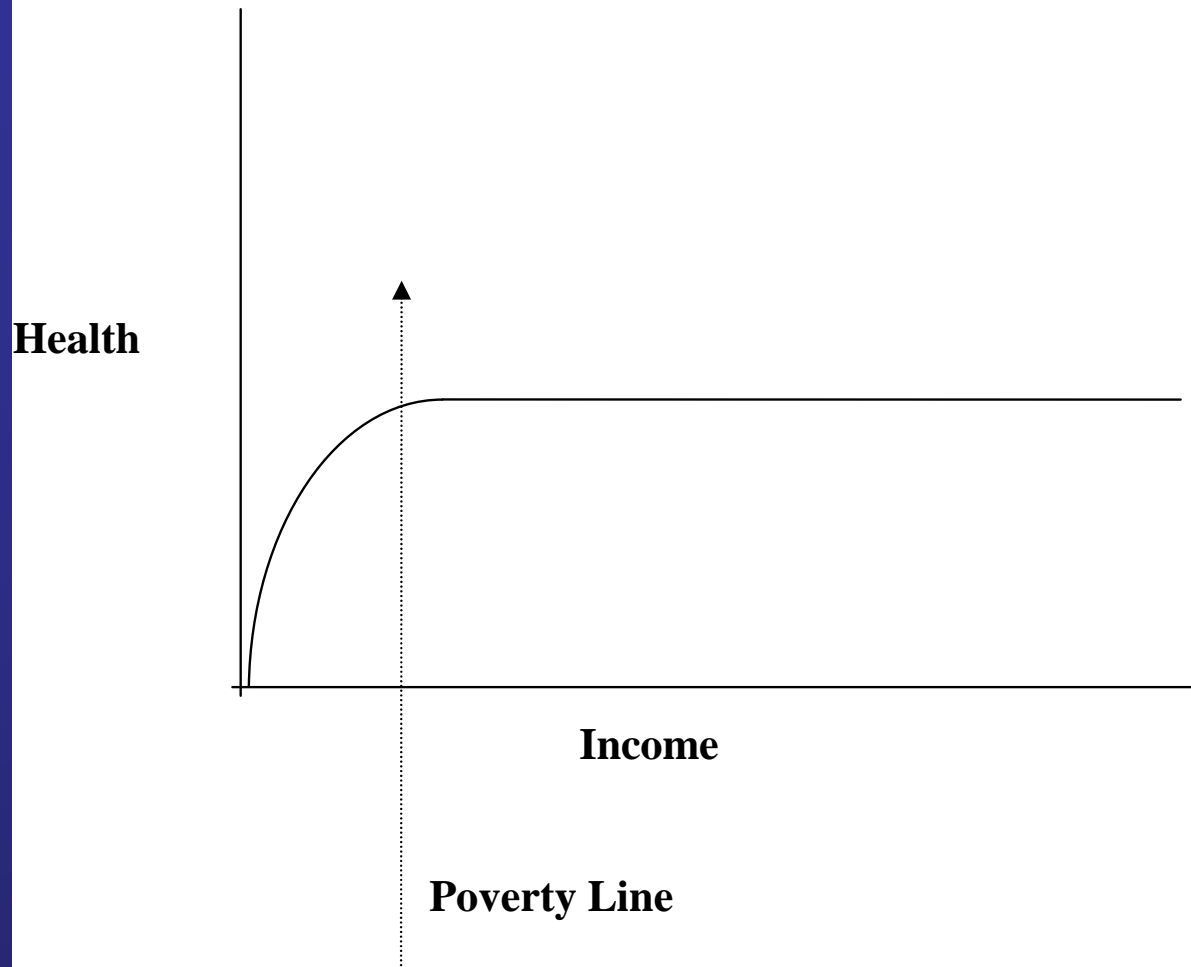
104

819

Health disparities research: 4 generations

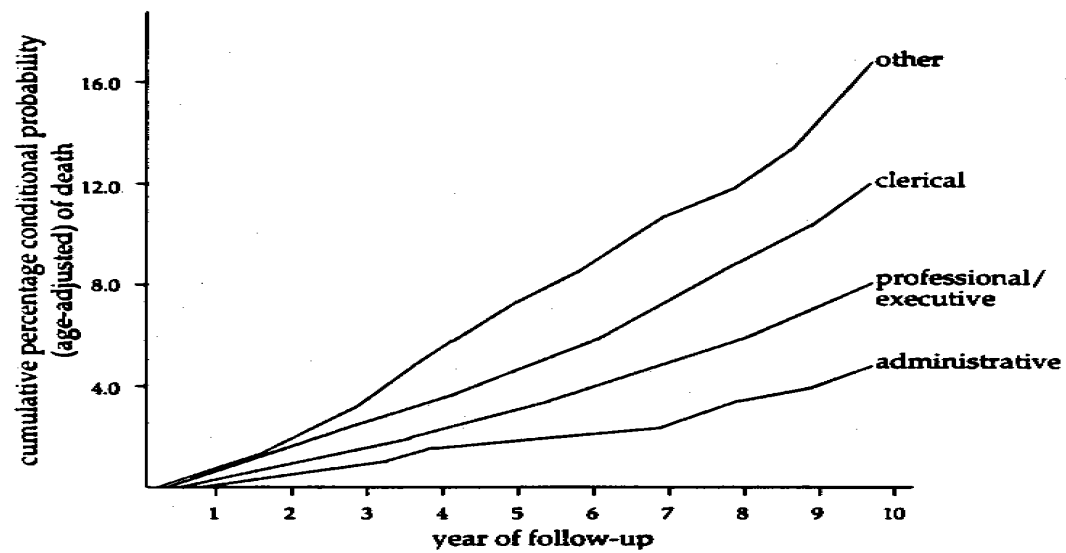
- 1st Categorical: Poverty & Race
- 2nd Gradient
- 3rd Mechanism
- 4th Multi-level & Interactions

Threshold Effect of Poverty

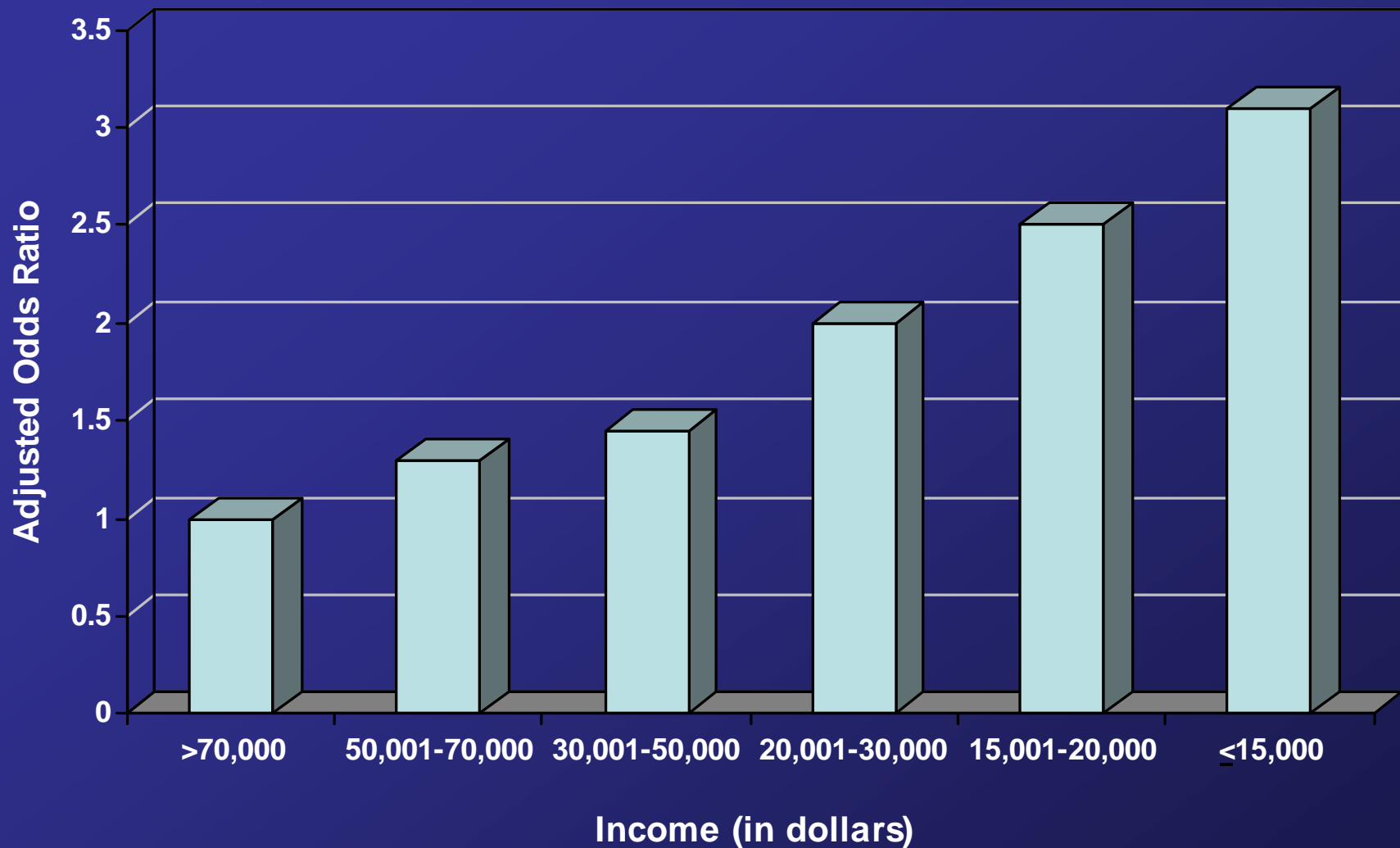


Second Generation:

SES – health gradients



Whitehall study: all-cause mortality by year of follow-up.

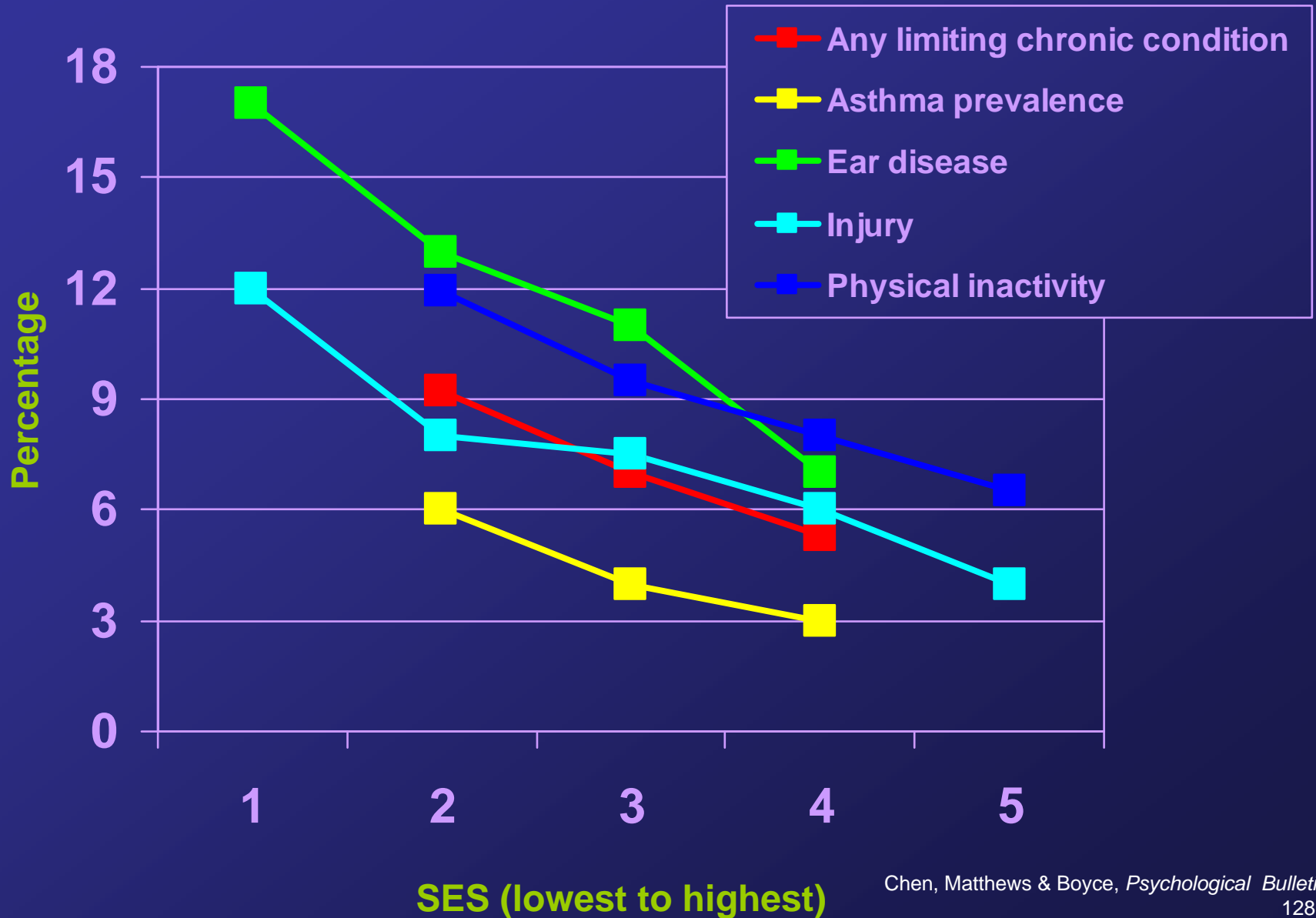


Adjusted odds ratio for death from all causes according to annual household income, 1972-1989

The group with an annual household income of more than \$70,000 (in 1993 dollars) is the reference group. Data are from McDonough et al. *Am. J Pub Hlth*, 1997.

Source: Issacs & Schroeder (2004) *New England Journal of Medicine*

Prevalence of Health Problems in Children



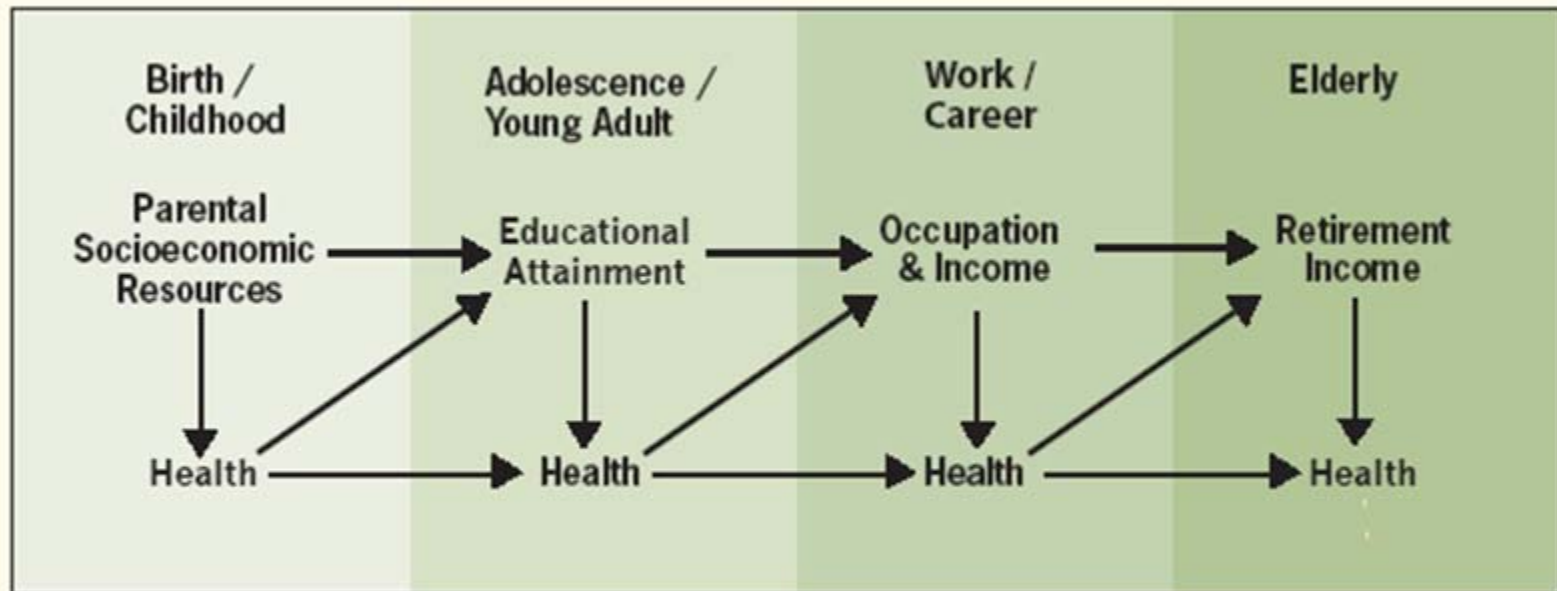
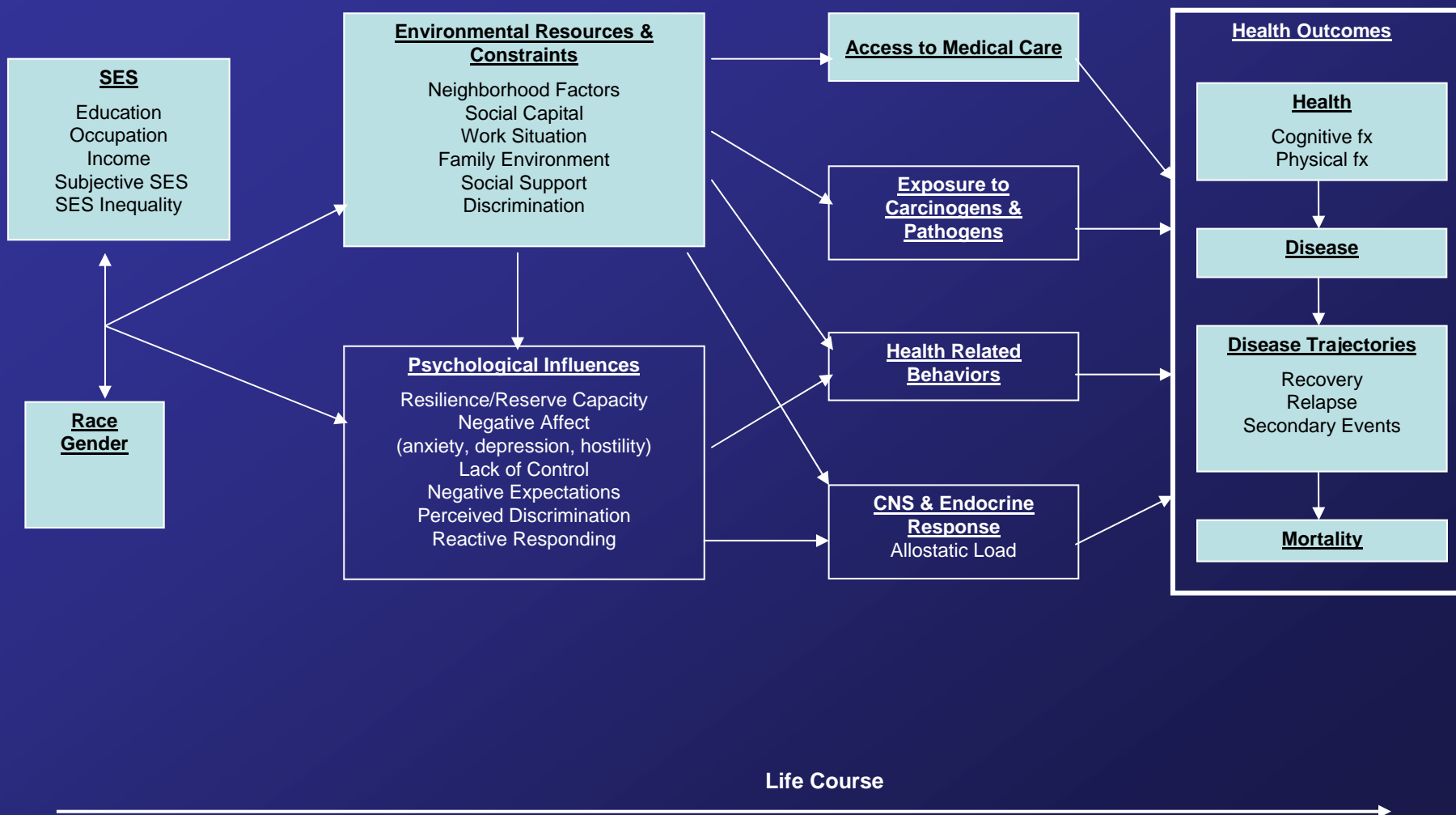


Figure 2. The Dynamic Relationship Between Health and Ladder Position.

Third Generation:

Mechanisms

How does socioeconomic status get under the skin?

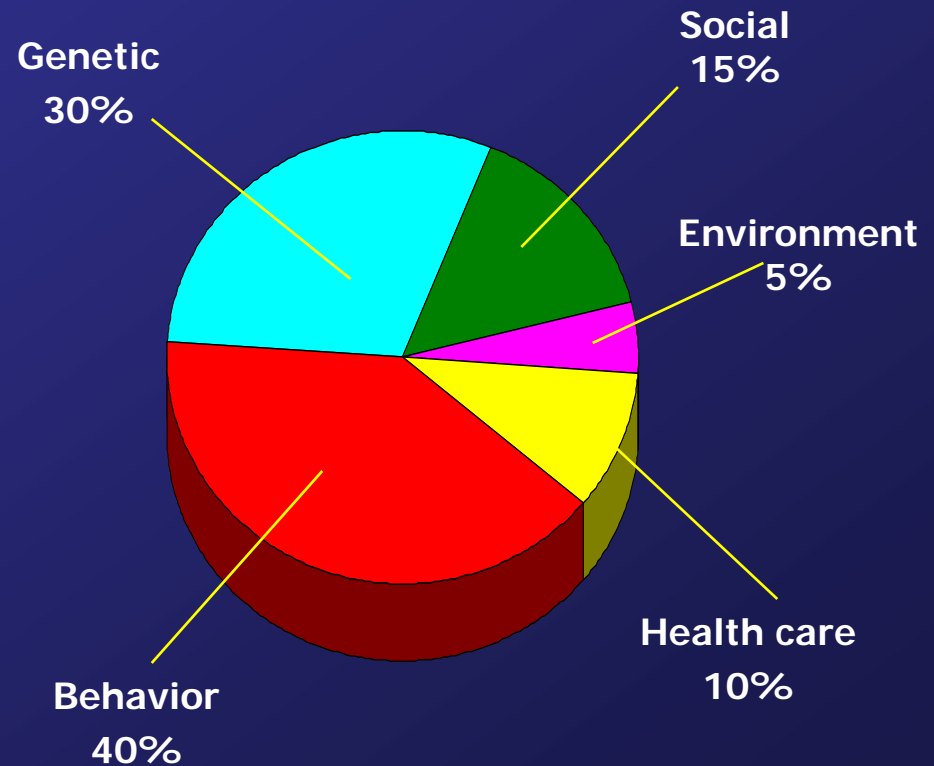


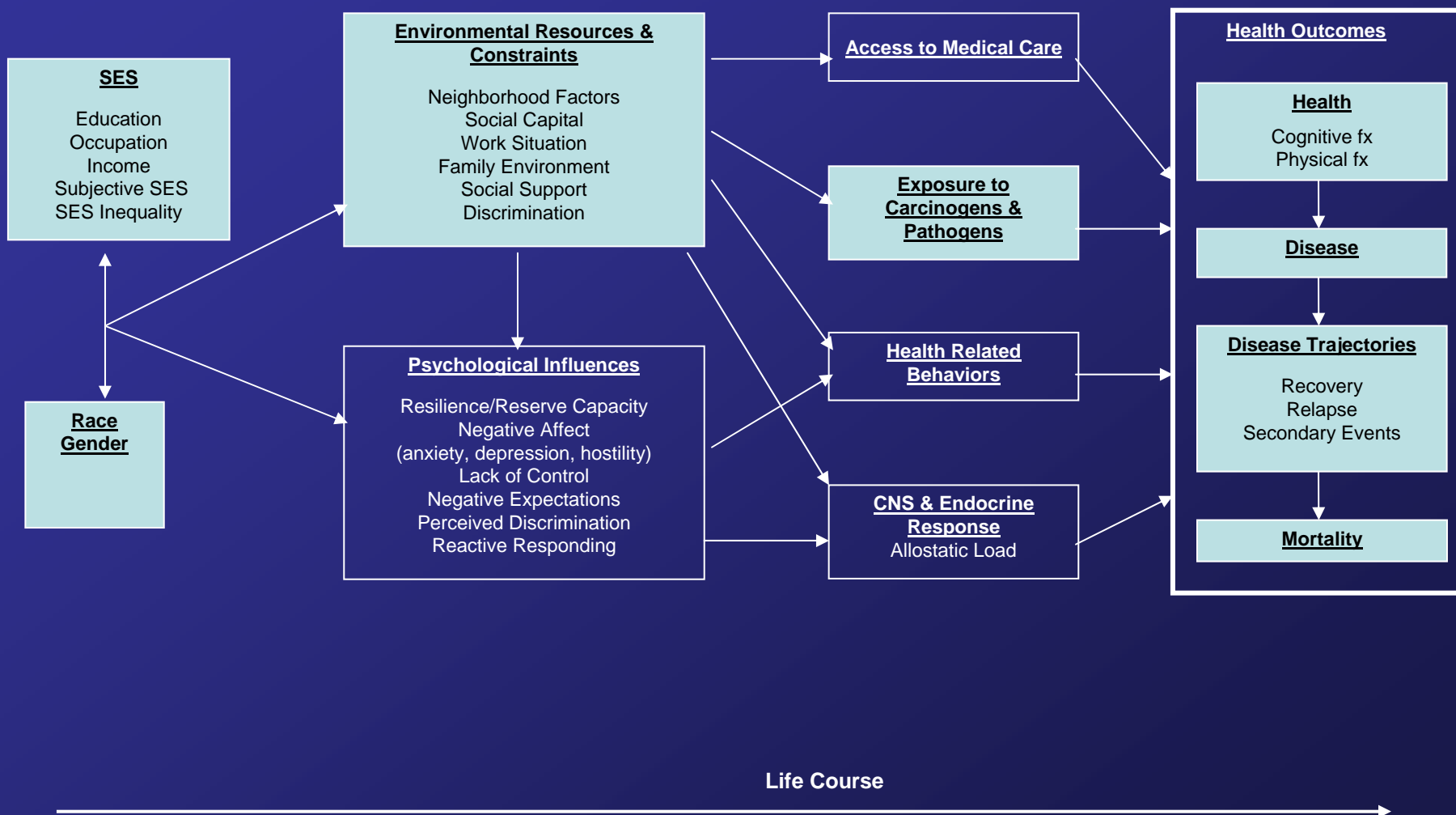
MaArthur Foundation Research Network model

Determinants of Health

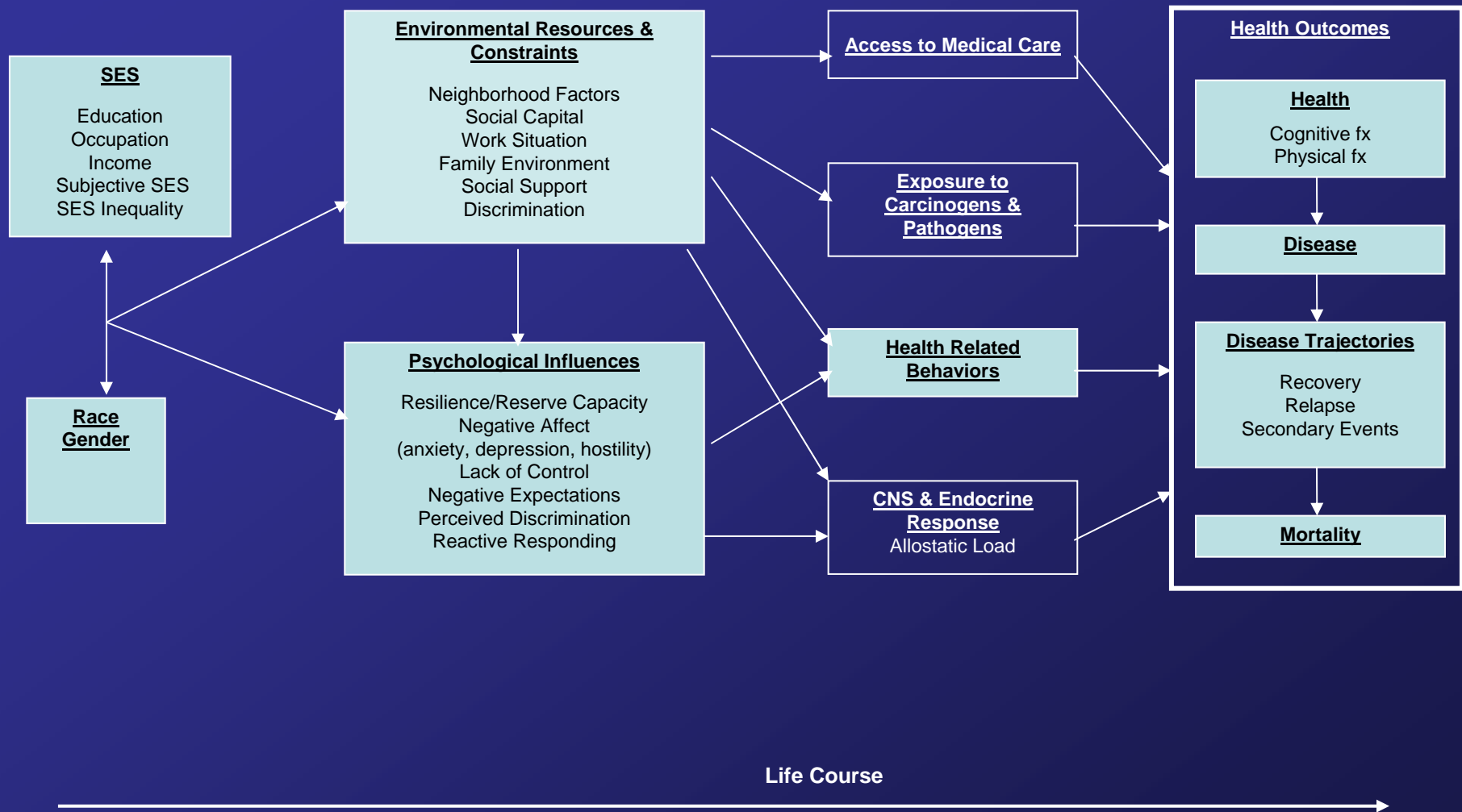
Proportions (Premature Mortality) (Premature Mortality)

- Genetic predisposition
- Behavioral patterns
 - Environmental exposures
- Social circumstances
 - Health care





MaArthur Foundation Research Network model



MacArthur Foundation Research Network model

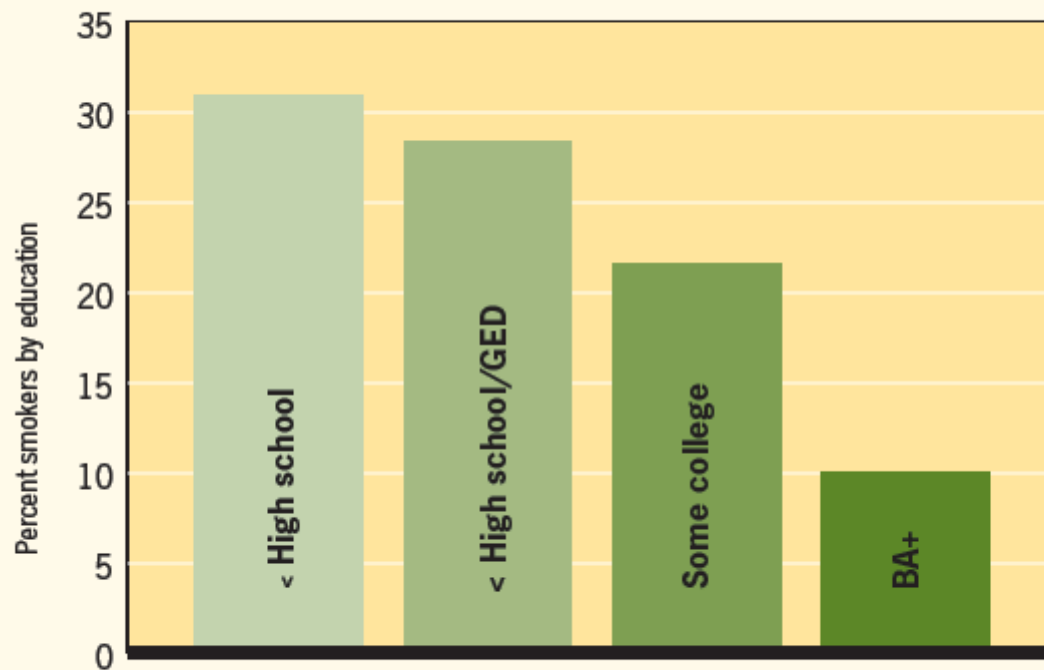
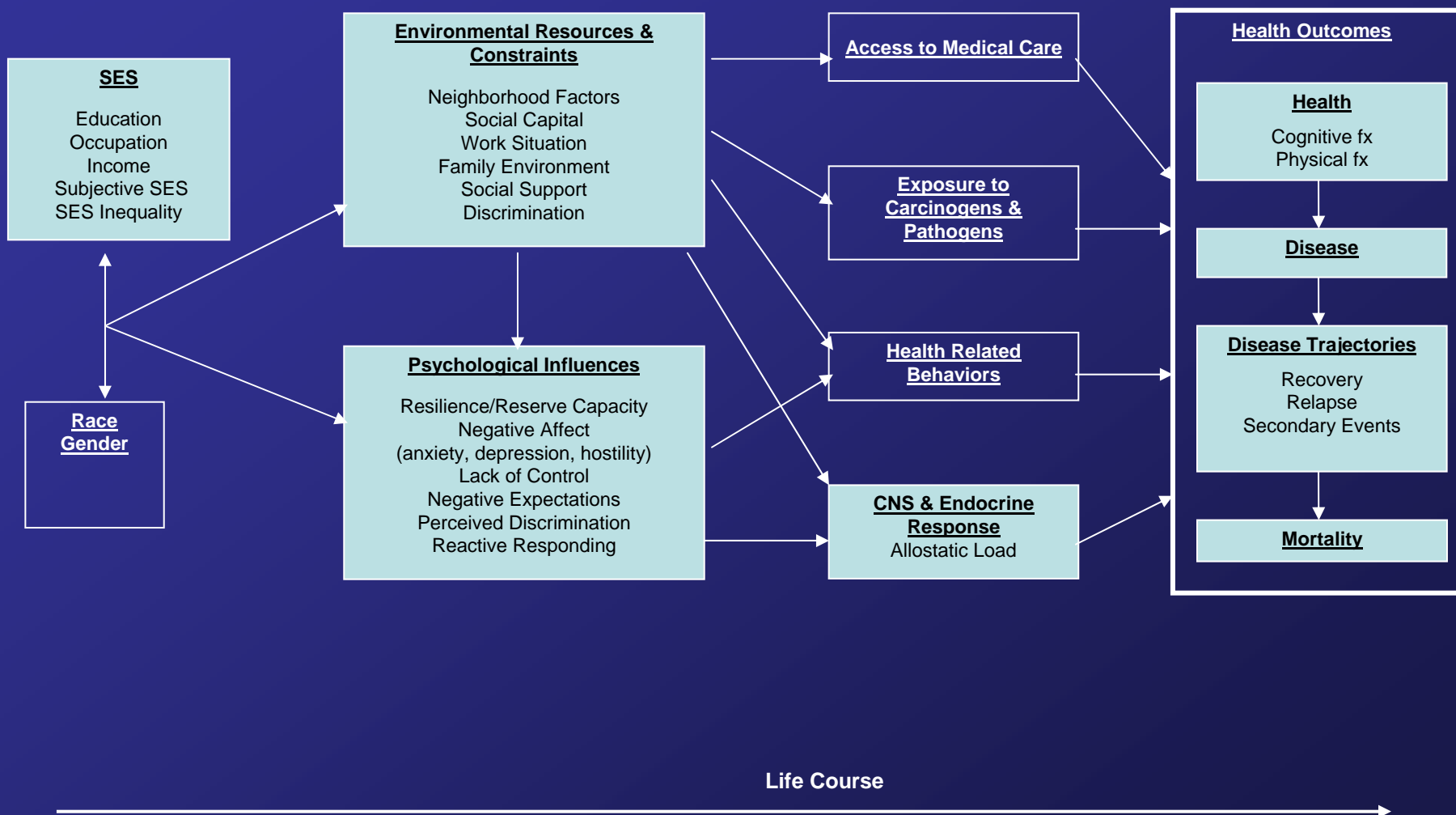


Figure 8. Current Cigarette Smoking by Adults Age 25 Years.

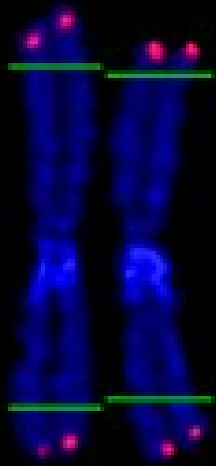
Source: *Health, United States*. 2004 p. 225



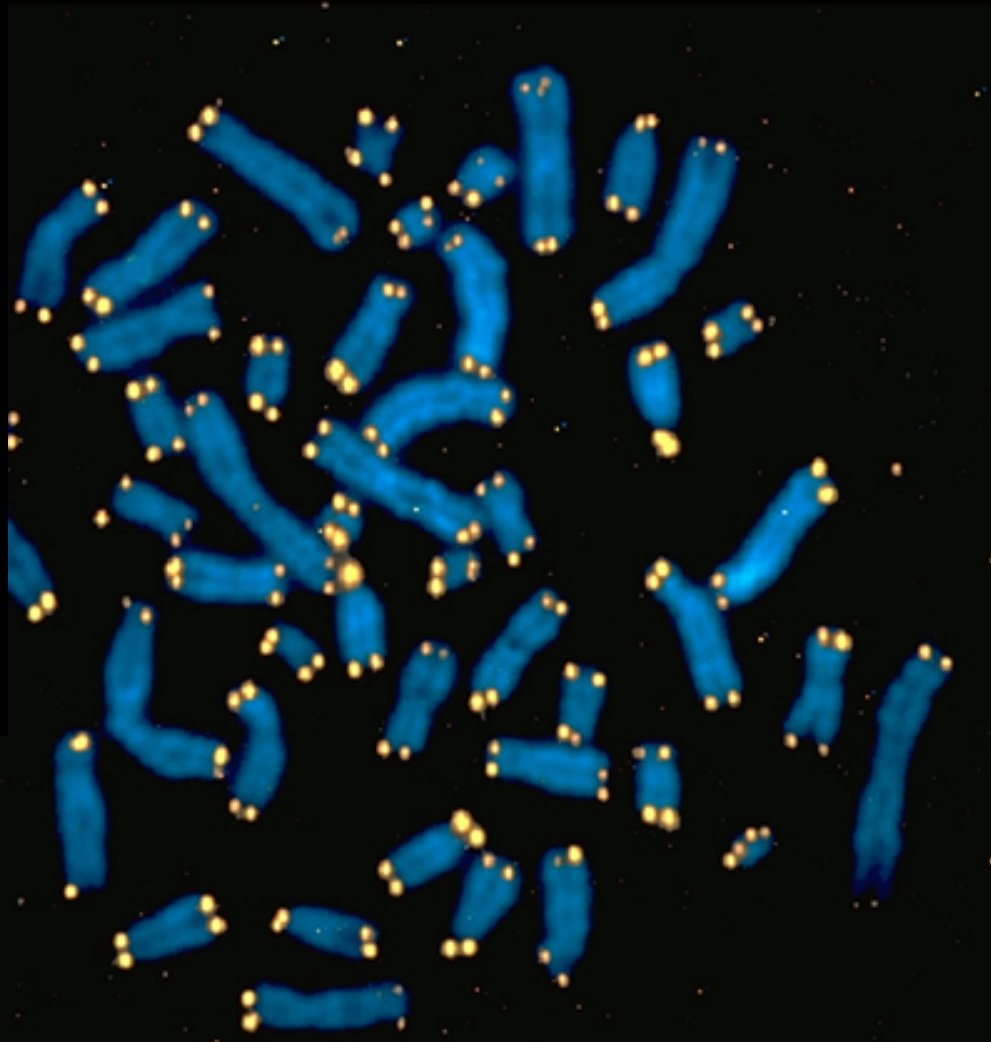
DRAWN & QUARTERED



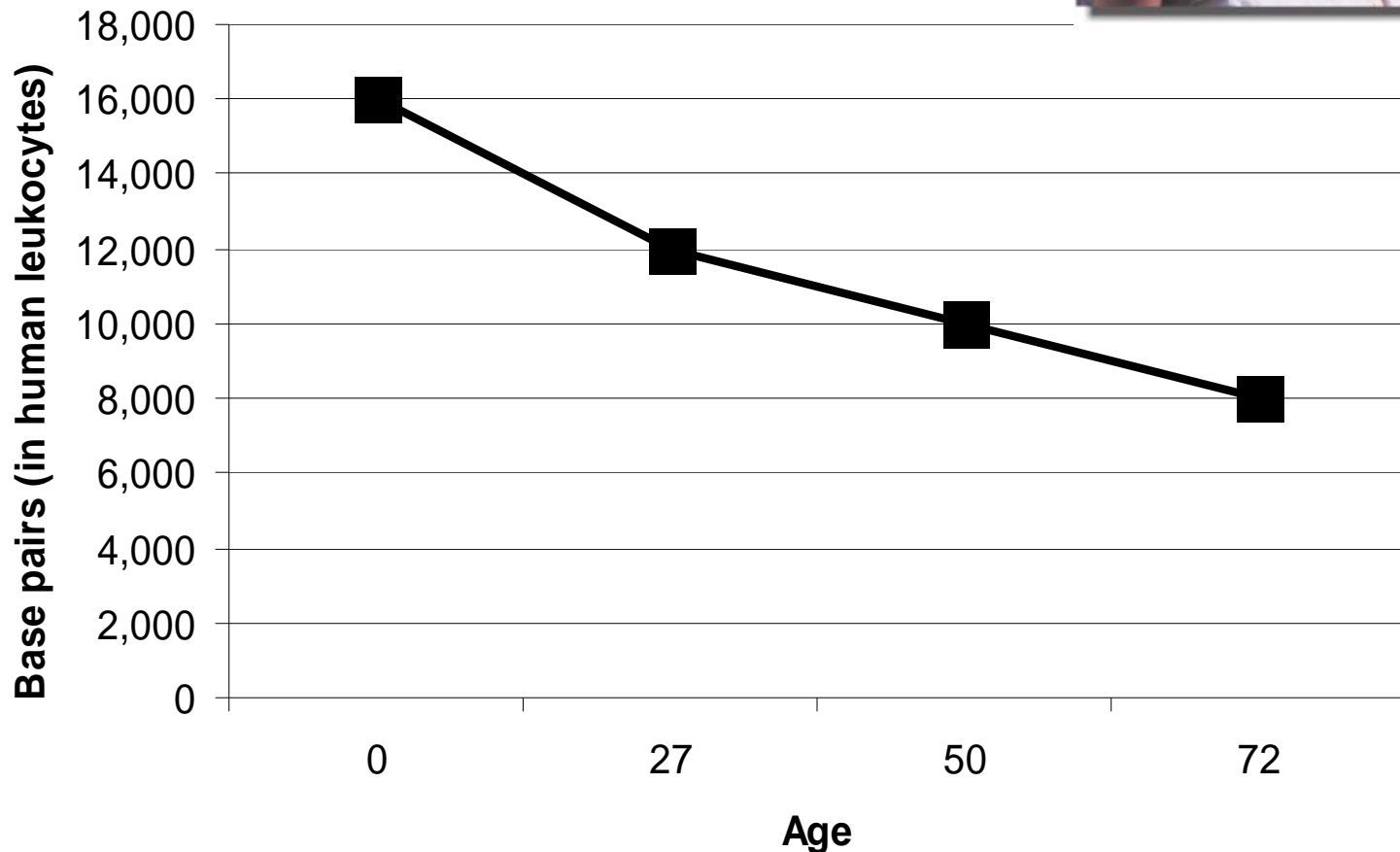
Telomeres cap ends of chromosomes (Blackburn, 1978)



1



Telomere length & age



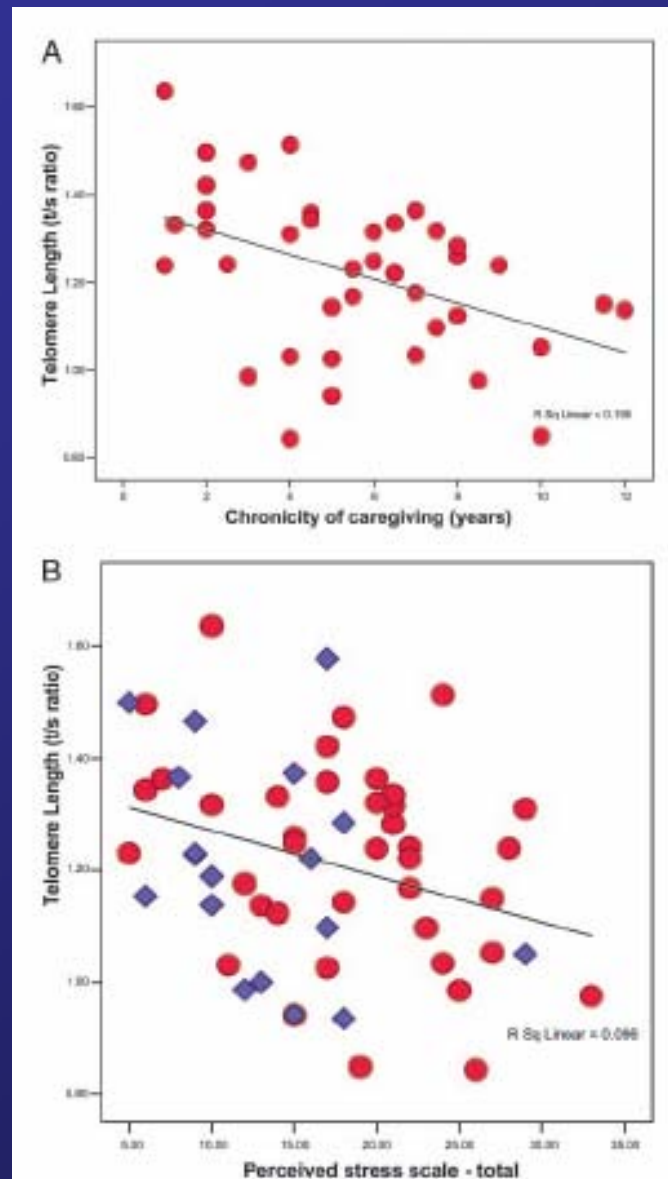
Telomere Length and Survival

RESEARCH LETTERS

Cawthon et al., 361, Lancet, 2003



Scatter plots of chronicity of stress by telomere length in caregivers and perceived stress scores by telomere length



Epel et al. (2004). *PNAS*

Social class

Fig. 1 Mean age-adjusted telomere length and standard error by social class grouping (P for trend = 0.0024).

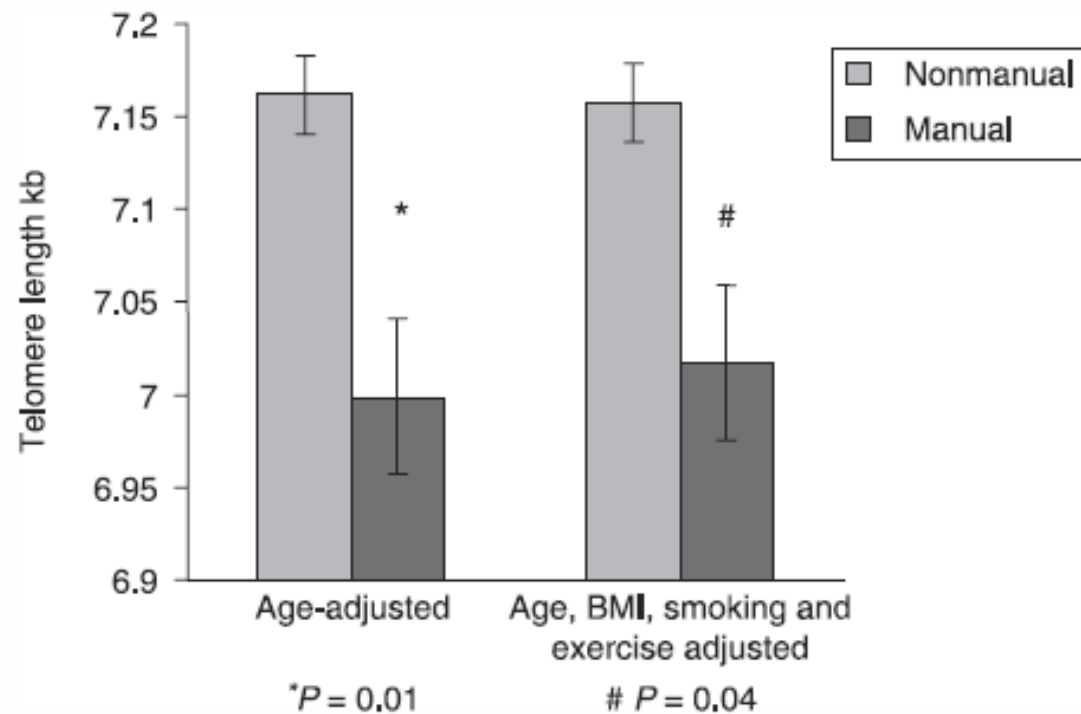
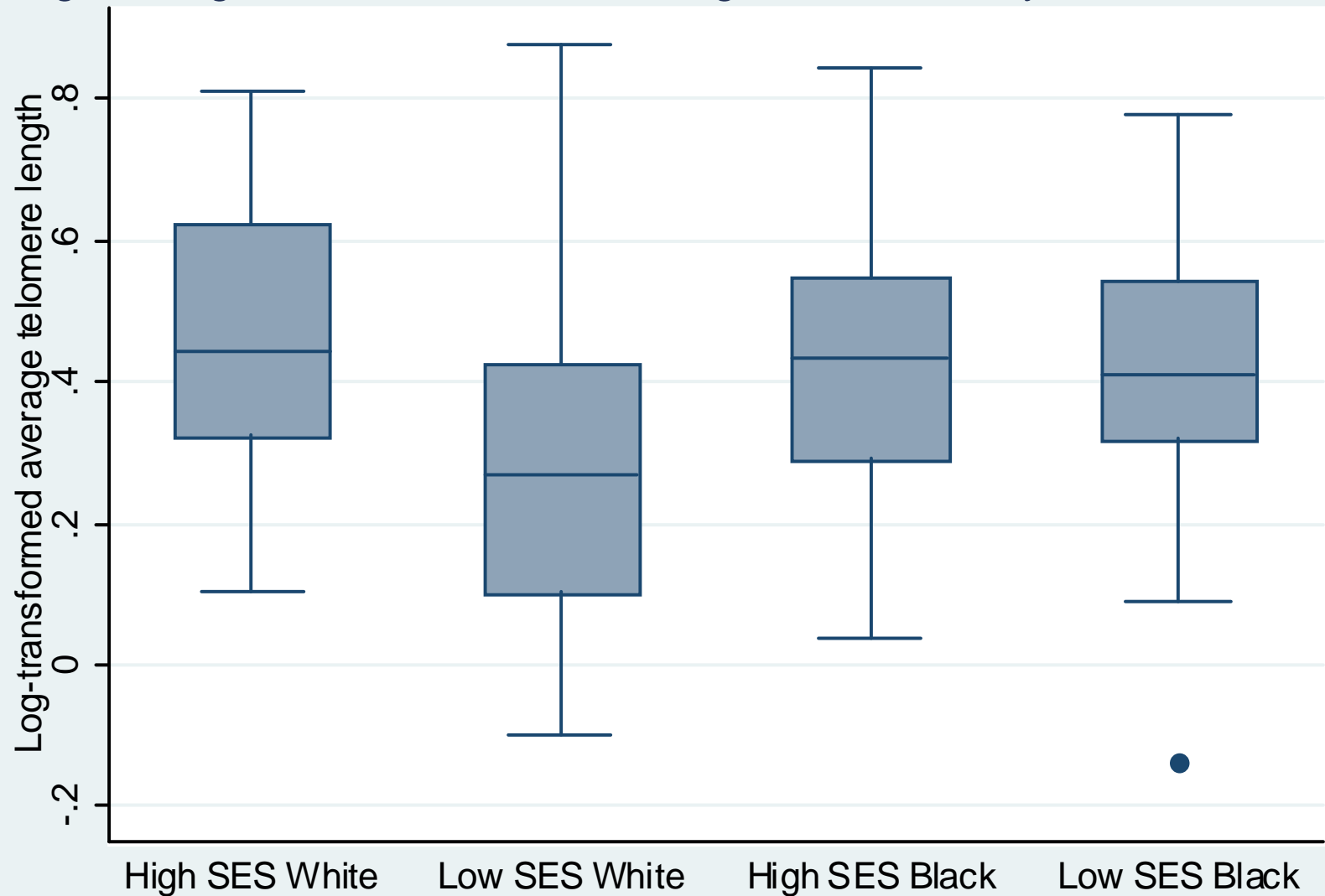
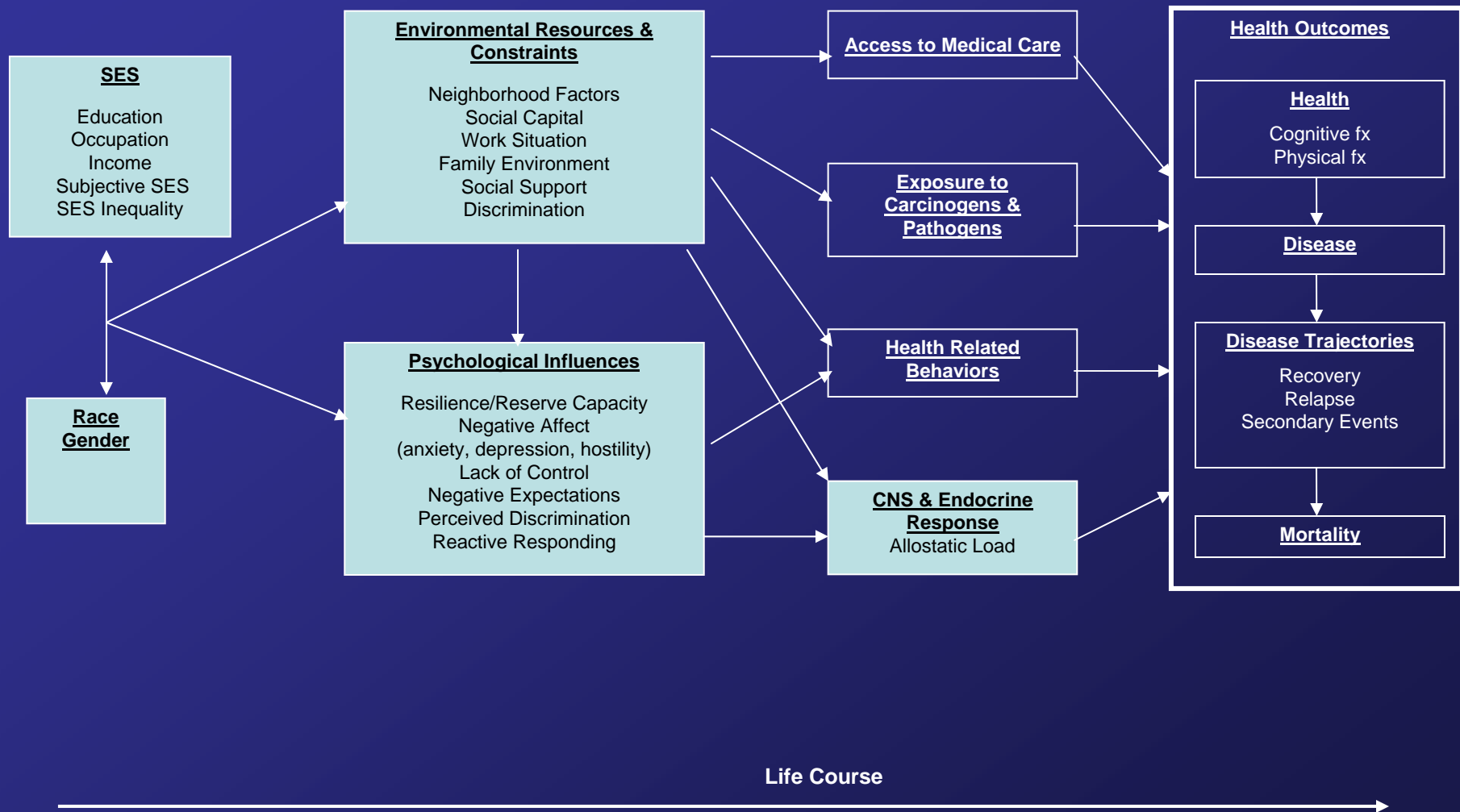


Fig. 2 Mean telomere length and standard error by manual vs. nonmanual social class groupings.

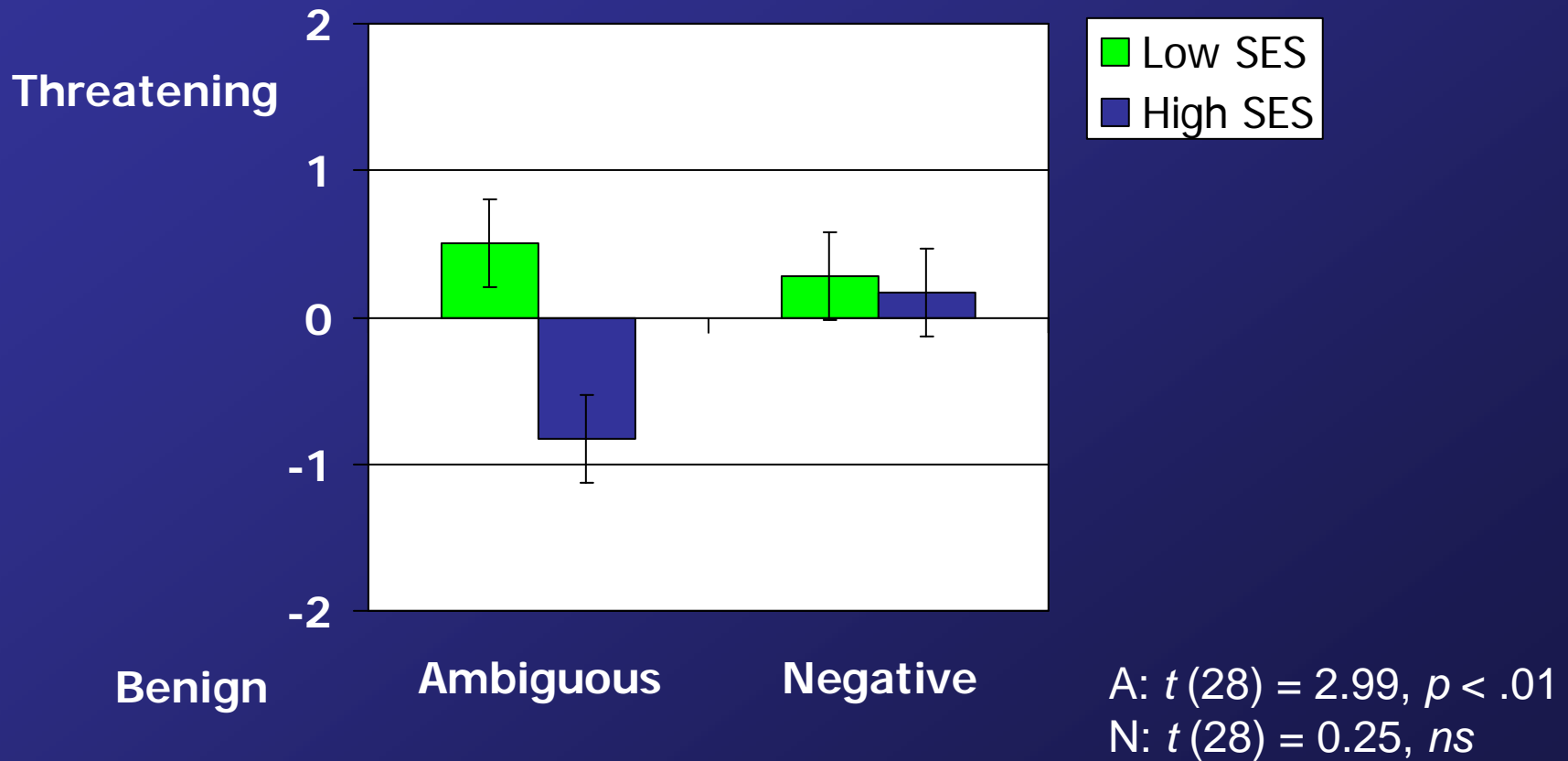
Figure. Log-transformed telomere length distribution by race and SES



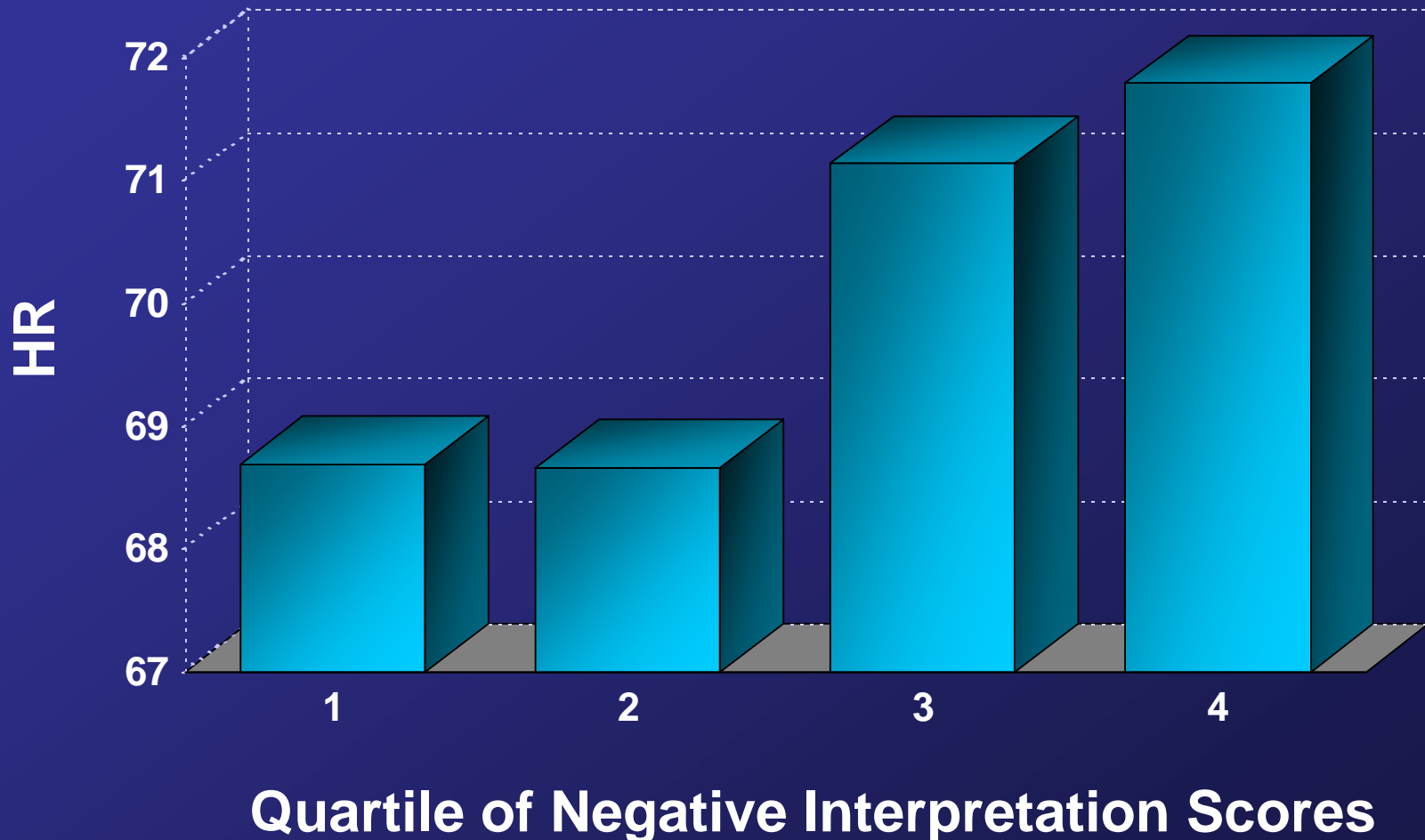


MacArthur Foundation Research Network model

SES & Interpretations



Adolescents who make negative interpretations have higher mean night time heart rate



Fourth Generation:

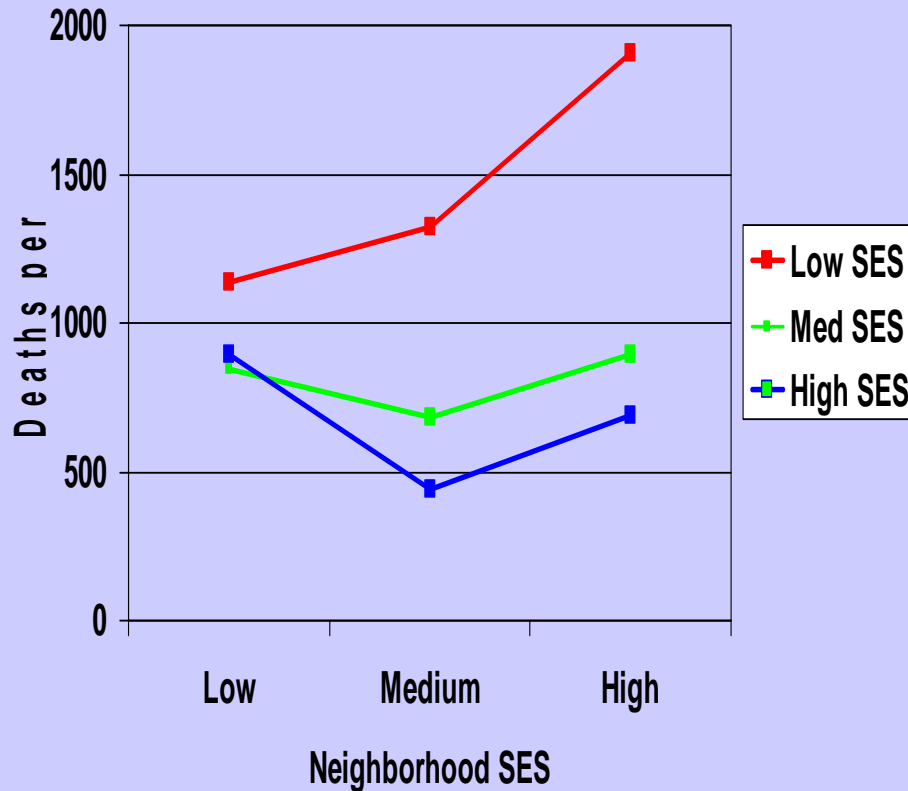
Multi-level
Interactions

Example One:

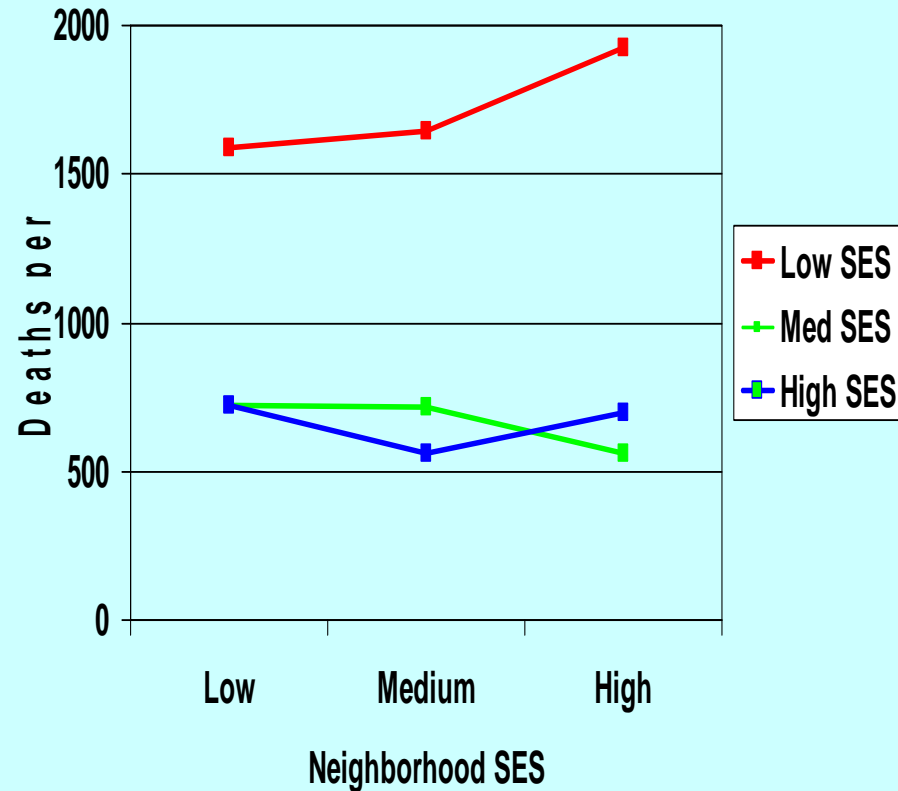
Interaction of individual and
neighborhood SES

Death per Neighborhood SES

Women

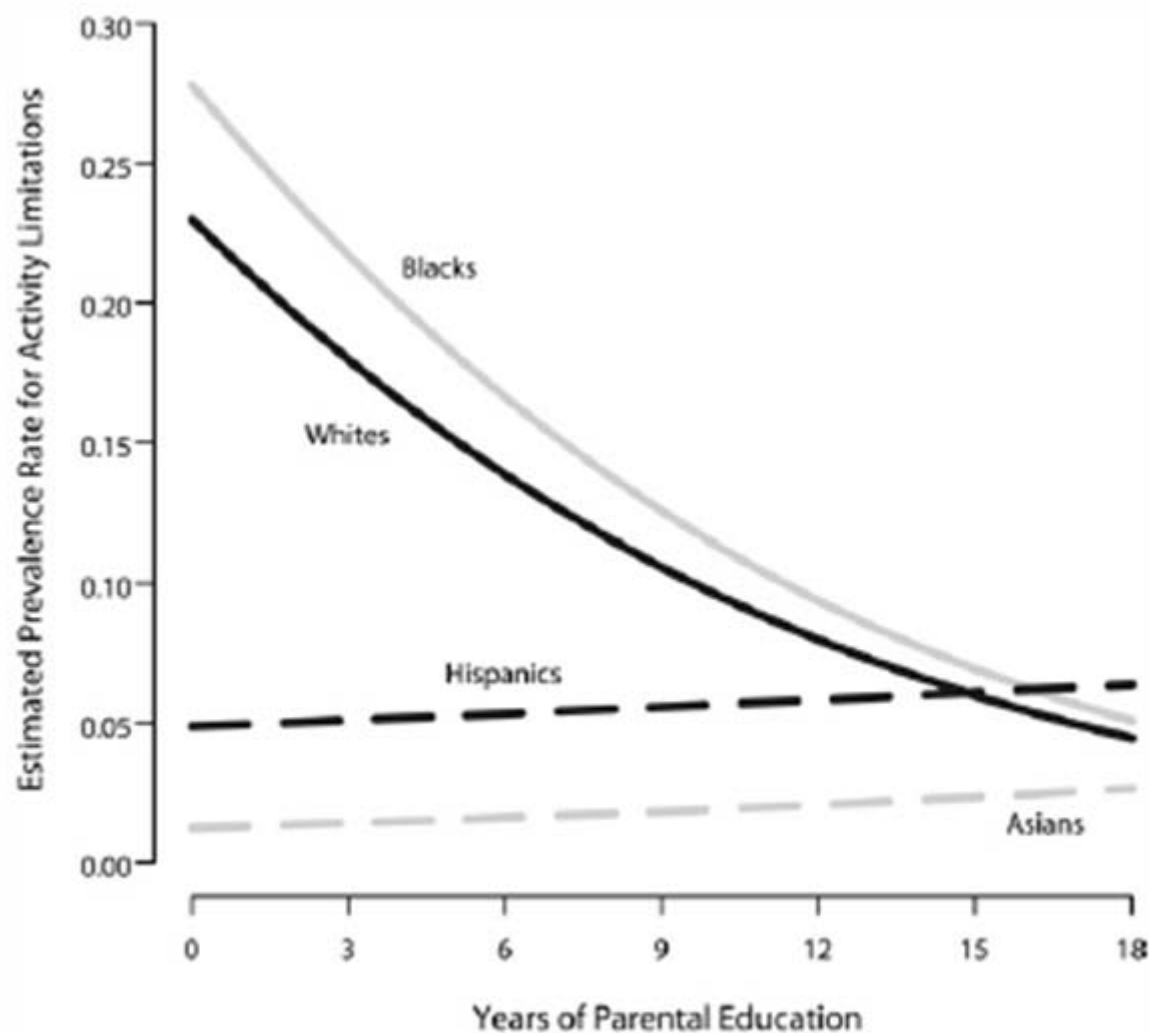


Men



Example Two:

Interaction of SES and
race / ethnicity



Note. The education line was significant among White and Black children (P 's were $< .001$) but not for Hispanic and Asian children.

FIGURE 1—Parental education \times race interaction for activity limitations.

Example Three:

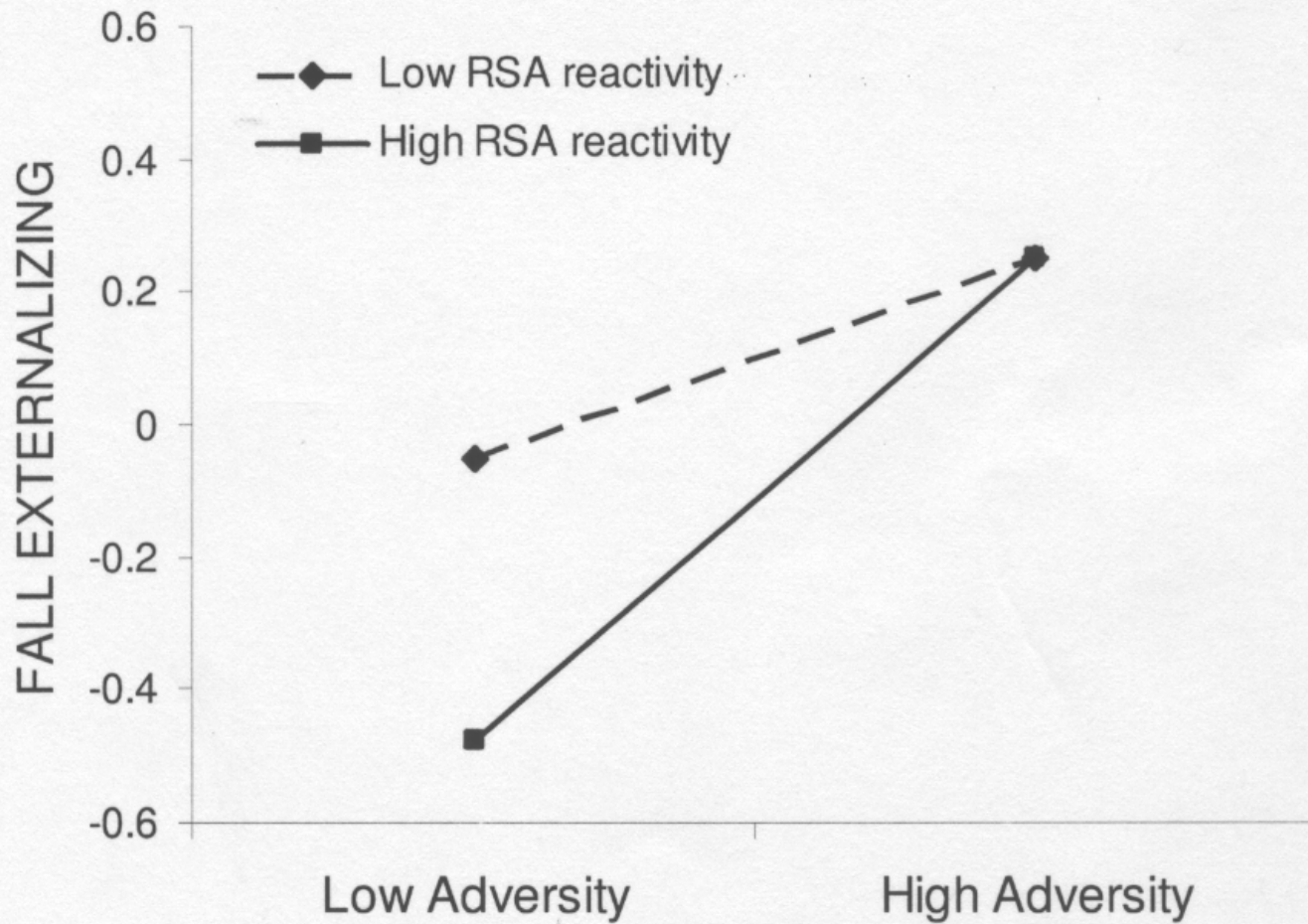
Interaction of reactivity and SES

Reactivity Challenges

- Social: interview about likes / dislikes
- Cognitive: digit span with negative verbal feedback
- Sensory: lemon juice on tongue
- Emotion: fear-inducing movie
- Reactivity: changes in respiratory sinus arrhythmia

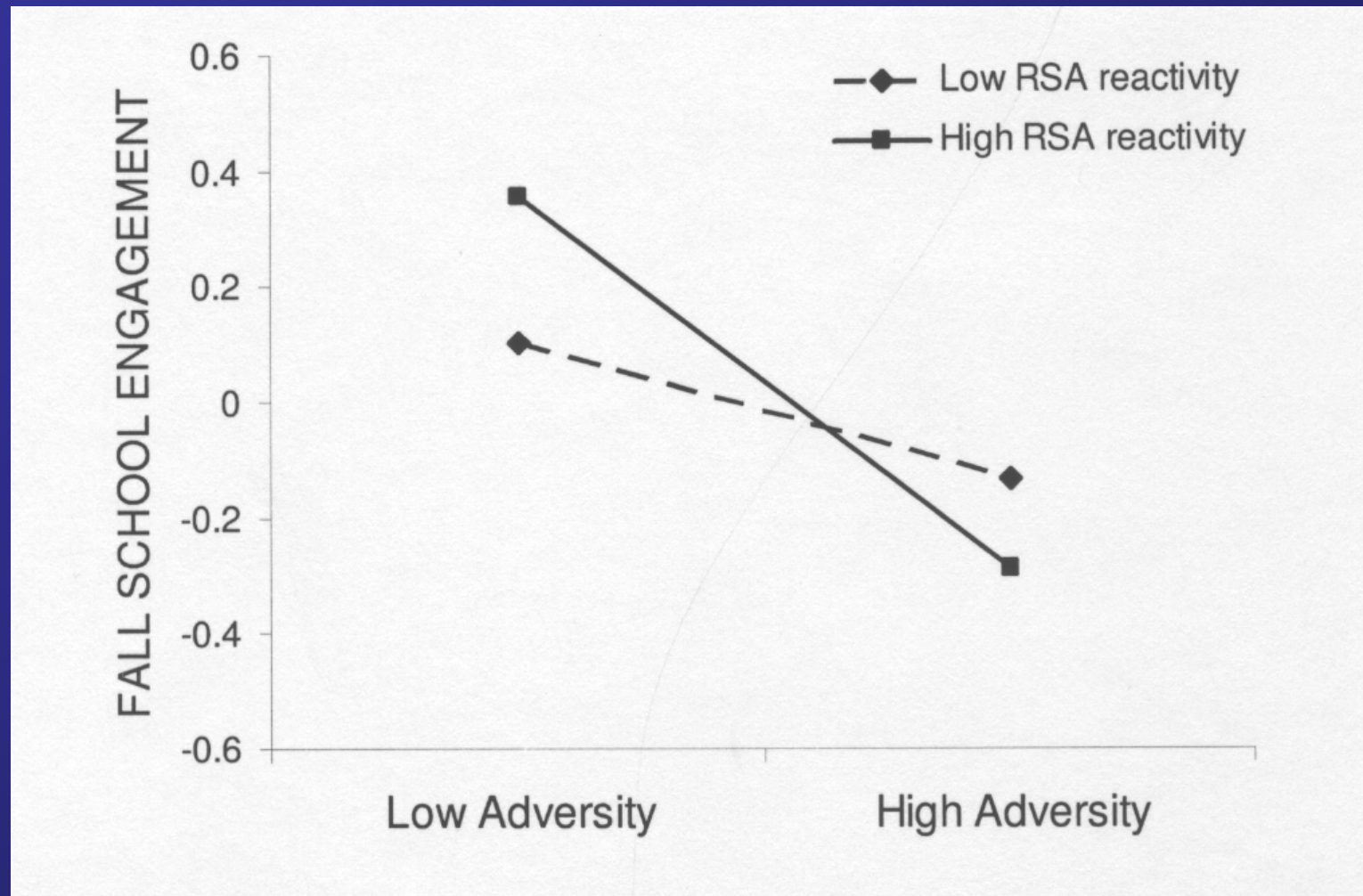
PAWS: Externalizing behavior

Interaction of family environment and reactivity



PAWS: Fall school engagement

Interaction of family environment and reactivity



PAWS: Spring school engagement

Interaction of family environment and reactivity

